

AER Journal

Research and Practice in Visual Impairment and Blindness

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**Association for Education and Rehabilitation of
the Blind and Visually Impaired**

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Association for Education and Rehabilitation of the Blind and Visually Impaired



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AER Journal: Research and Practice in Visual Impairment and Blindness

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Original Research papers reflect the latest scientific discoveries in the fields of education and rehabilitation in vision impairment and blindness (maximum length: 4,000 words).

Practice Report papers reflect examples of best practice in the fields of education and rehabilitation of persons with visual impairments or who are blind. We expect not only academics but also practitioners to benefit from the contents (maximum length: 3,000 words).

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**AER Journal:
Research and Practice
in Visual Impairment and
Blindness**

**A quarterly journal in the field of education and
rehabilitation of persons of all ages with low
vision or blindness**



**AER Journal: Research and Practice in Visual
Impairment and Blindness**

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on Falls and Falls Prevention



Submit papers reporting on research results and practice outcomes related to falls and falls prevention for people with vision loss. The theme issue will focus on positive practical approaches to rehabilitation that are shown to prevent falls. Authors are invited to include implications for the vision rehabilitation professional.

Manuscript submission deadline: November 10, 2010. Publication date: Spring 2011.

The AER Journal welcomes Guest Editor: Dr. J. Vernon Odom, Professor of Ophthalmology, Professor of Physiology and Pharmacology, and Adjunct Professor of Psychology at West Virginia University where he heads the West Virginia Lions Visual Function Laboratory.

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AER Journal: Research and Practice in Visual Impairment and Blindness
**A quarterly journal in the field of education and rehabilitation of persons of all
ages with low vision or blindness**

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AER Journal: Research and Practice in Visual Impairment and Blindness



Is extremely pleased to welcome Lauren J. Lieberman, PhD, as Guest Editor for the upcoming ***Special Theme Issue: Recreation, Leisure, Sport, and Play***, to be published in Fall, 2011.

Dr. Lieberman is currently a professor at The College at Brockport in the area of Adapted Physical Education. She is also the undergraduate coordinator of the Adapted Physical Education Concentration. She has been teaching at Brockport for 15 years. Prior to graduate school she taught at the Perkins School for the Blind in the Deafblind program for 5 years.

Dr. Lieberman teaches graduate and undergraduate classes in Adapted Physical Education. She supervises practicum experiences at both the undergraduate and graduate level. She also runs Camp Abilities, a developmental sports camp for children with visual impairments, each summer. Her areas of research include inclusion strategies and physical activity for youth with sensory impairments. She has published 60 articles in refereed journals and presented over 90 papers in the US and 21 other countries. Dr. Lieberman has written or edited six books: ***Games for People with Sensory Impairments***, co-written with Jim Cowart; ***Strategies for Inclusion***, co-written with Dr. Cathy Houston-Wilson, her colleague at Brockport; and ***Case Studies in Adapted Physical Education*** with three co-authors. She is the editor of the book ***Paraeducators in Physical Education***; co-author of the book (with two others) ***Going PLACES: A Transition Guide to Physical Activity for Youth with Visual Impairments*** through the American Printing House for the Blind; and ***Strategies for Inclusion***, which is now in its 2nd edition. She has four books in press: ***Assessment for Everyone***, through the National Association for Sport and Physical Education; ***Games for People with Sensory Impairments***, now in its 2nd edition, and ***Everybody Plays: How Children with Visual Impairments or Deafblindness Play Sports***, both through the American Printing House for the Blind; and ***Physical Activity, Sport, and Recreation for Individuals Who are Visually Impaired and Deaf-Blind*** with her colleagues Paul Ponchillia (a professor who is an athlete and is blind) and his late wife, Susan.

She has been involved in the Adapted Physical Activity Council for several years. She is currently on the editorial board of the Journal for Physical Education, Recreation & Dance (JOPERD) and on the board of the United States Association for Blind Athletes.

**Submission Deadline for the
Special Issue on Recreation, Leisure, Sport, and Play
is February 1, 2011.**

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**AER Journal: Research and Practice in Visual
Impairment and Blindness**

Call for Manuscripts

Special Theme Issue

on Recreation, Leisure, Sport, and Play



Limited physical activity can lead to many health issues, isolation, and mental health issues. There are many barriers to participation in physical activity, sport, and recreation for people with sensory impairments of all ages. Increasing physical activity can improve all of these areas, increase quality of life, and improve perceptions of abilities of people with visual impairments or blindness in the sighted world. This issue aims to fill this gap and provide cutting edge information related to this important area.

Do you work with children or adults with visual impairments or blindness in a physical activity, sport, or recreation setting? Do you conduct research in this area?

Consider submitting a manuscript for the *AER Journal's* Special Theme Issue Fall, 2011: Recreation, Leisure, Sport, and Play

Guest Editor: Dr. Lauren Lieberman

Manuscripts can be: Original Research, Practice Reports, Book or Film Reviews, or Theory Pieces.

Manuscript submission deadline: February 1, 2011

Publication date: November 2011

Visit: www.editorialmanager.com/aerjournal
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See You in Little Rock

In July 2000, I joined CNIB as their National Coordinator of Children's Services. It was a position that had not existed before, and it was my first opportunity to apply my broader knowledge of disability, social policy, and children's issues to the challenging and fascinating field of vision rehabilitation. I learned very quickly that I had a great deal to learn. I joined the organization on July 10, and about one week later, I was on a plane headed for Denver, Colorado, and the steepest learning slope of my life! The goal was to attend as many workshops, paper presentations, special tours, divisional meetings, and poster presentations as possible. My newest mentor at the time was the late Linda Studholme, my supervisor, who was amazing and did everything from hold my hand as we descended through the famous Denver turbulence, to dining with me when I knew not a single soul, to sending me off on my own to every possible session that applied to my work, and insisting I join the "crazy Canucks" on a rented van ride through the Colorado Rockies in a major mountain rainstorm.

My first AER conference was indeed memorable. Although it was a full 10 years ago, and my dear friend Linda is no longer here to push, pull, cajole, tease, and especially teach me, I have felt her presence at each and every subsequent AER conference. That first experience taught me that an excellent professional conference could be both a learning experience and a fabulous opportunity for networking. It taught me that you should attend with an open mind, and leave completely exhausted. It taught me that no matter how highly technical our world becomes, and no matter how often we convene using e-, tele-, and video-conferencing services, nothing ever matches getting together in person with colleagues who share a common interest and being able to engage with them face to face. Nothing.

So I take this opportunity to urge our readers to attend this year's AER International Conference in Little Rock, Arkansas. You will not regret this decision, and it may have a lasting impact that you will never forget. If you have not met me, please

come look for me at the *AER Journal* booth in the exhibit hall, or come to my session on writing for publication. Stop me in the hallway or phone my room and leave a message for me so we can meet. I look forward to meeting many, many AER members and conference attendees at this year's conference. We want your ideas for the *Journal* and your commitment to write or review for us. More than anything else, the International Conference gives me an opportunity to get to know our members. I look forward to meeting you there.

About This Issue

Our first feature article is about the status of education for blind and visually impaired students in Nepal. Dr. Kamal Lamichhane pitched the idea of sending me a summary of his doctoral work (currently underway) during the reception where we launched the *Journal* at the AER conference in Chicago. Our Associate Editor, Dr. Amy MacKenzie, worked diligently with the author to make the manuscript suitable for publication, and we are very pleased to be able to support an international submission like this one.

Our second article is an example of a paper that can arise out of a conference presentation. Mr. Michael Gleeson presented this paper at the 13th International Mobility Conference in Marburg, Germany in July 2009, and he was then invited to submit the presentation as a Conference Proceeding manuscript to *AER Journal* for review.

The third article in this issue is a special tribute to a remarkable professional in our field, Dr. Susan Ponchillia. I learned a great deal about Dr. Ponchillia in reading this piece, and I am very pleased that we could include it in this issue of the *Journal*.

Until next time,



Deborah Gold, PhD
Editor-in-Chief

A Comparative Study of Integrated Educational Facilities in Nepal

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Keywords: integrated education, visual impairment, Nepal, teachers of students with visual impairments (TVIs)

Introduction

According to the Central Bureau of Statistics, Nepal, the total population of Nepal at the time of the most recent census (2001) was 23,151,423. Of this population, the report of the 1981 Nepal Blindness Survey estimated that 117,623 people were blind (0.84 percent at the time), 259,888 people (1.85 percent) had low vision, and 233,612 people (1.66 percent) were blind in one eye (His Majesty's Government of Nepal, 2002). As for a precise statistic, neither the exact number nor any numbers more recent than this can be ascertained because of the unavailability of updated data. These statistics were derived from a population of 39,887 individuals (Brilliant, Pokhrel, Grasset, & Brilliant, 1988). This report further mentioned that 80 percent of the blindness was found to be avoidable and curable. Cataracts and glaucoma were the primary causes of avoidable blindness, with cataracts accounting for 70 percent of cases (Brilliant et al., 1988).

In 1964, the Laboratory School of Kathmandu opened its doors for the first time to students with visual impairments (Prasad, 2003; UNICEF Regional Office for South Asia 2003). The school's program was referred to as "integrated education," meaning that students with visual impairments studied together with students without disabilities in the same classroom (Hall, 1990). The program's main innovation was the introduction of skill-based classes

for students with visual impairments prior to their placement in mainstream classes.

Integrated education refers to the meaningful involvement of children with disabilities in ongoing regular educational programs. The ultimate goal of integrated education is the optimal academic and social as well as personal learning of each child (Namgayel, 1985). The development of integrated education as an educational approach represents an attempt to address the flaws of segregated schooling: Integrated education helps to bridge the gap between those with and without disabilities, raising awareness about disability issues by starting with society's youngest members.

Today in Nepal, integrated education has been accepted as a component of the community-based rehabilitation (CBR) of persons with visual impairments. The Nepal Association for the Welfare of the Blind (NAWB), established in 1986, continues to play a major role in the expansion of integrated education along with CBR programs in different parts of the country (Hall, 1990). At the time of this research, there are 73 NAWB-supported schools providing integrated education for students with visual impairments, each with arrangements for at least one teacher of students with visual impairments (TVIs). TVIs teach skill-based resource classes, which students with visual impairments attend prior to joining integrated classes. Typically, these resource classes are established within local schools that have facilities such as separate classrooms to accommodate resource classes (UNICEF Regional Office for South Asia, 2003). Students with visual impairments remain in these resource classes until they gain such necessary skills as the use of braille, independent living skills (ILSs), and orientation and mobility (O&M), after which

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they begin to attend mainstream classes. Once students with visual impairments enter mainstream classes, they no longer attend resource classes unless they encounter specific problems related to their impairment, including academic issues. For most students with visual impairments, the time for mainstreaming is approximately 1 year.

In Nepal, resource classes for students with visual impairments function quite differently from many other countries' special classes. Students focus entirely on gaining the previously mentioned skills before joining mainstream classes. Thailand's educational provisions for students with visual impairments are similar, with the important distinction that students with visual impairments attend separate schools, such as the Bangkok School for the Blind, to prepare for entry into integrated schools (Foundation for the Blind in Thailand, 2009). In Nepal, by contrast, there is only one comprehensive school exclusively for students with visual impairments. This is the Purbanchal Gyanchakshyu Bidhyalaya, established in 1977 in the Sunsari district of eastern Nepal. Aside from this lone school, all students with visual impairments follow the pattern of attending resource classes and then moving into integrated classrooms.

Regular courses of mainstream classes are the responsibility mainly of subject teachers who, in general, don't have special training regarding the needs of students with visual impairments. TVIs typically have no additional teaching or administrative duties in mainstream classes. It should also be noted that there are no specialized institutions providing standardized professional training to TVIs. As Hall (1990) has noted, Tribhuvan University previously offered a 1-year teacher training program. However, because of the absence of sufficient funding, this program is no longer operational. The only training program available to TVIs at present is administered by the NAWB in cooperation with the Special Education unit of the government. This program offers training in braille, Nemeth code, ILSs, and O&M but is not a licensing authority.

Despite the fact that integrated education has a nearly 50-year history in Nepal, no significant study has yet been undertaken to examine the services available for students with visual impairments. Therefore, the aim of this study is to describe the existing situation of support and facilities for students with visual impairments in resource classes, with a particular focus on skill training received from TVIs

before the children join integrated classes. The characteristics of current TVIs are also discussed, with a particular focus on their educational and training backgrounds. This will help identify the constraints of Nepal's system of educational support for students with visual impairments. Additionally, it will be an important source of information to educators and all concerned authorities in Nepal.

Methods

Participants

This study's participants consisted of resource-room TVIs in schools offering integrated education to students with impairments. Respondents to this study came from schools in all five of the regions of Nepal. The TVIs surveyed were the primary administrators of resource classes in their schools.

Data Collection

A combination of questionnaire and semistructured interview techniques were used for the collection of data. The questionnaires were sent to each of the 73 schools in Nepal that currently offer integrated education. Fifty-two responses were obtained, a return rate of 71.23 percent.

The questionnaire included three sets of questions: (a) demographic and professional characteristics of TVIs, (b) background information on the school and its facilities, and (c) difficulties faced by both students with visual impairments and TVIs. These questions were largely multiple choice but also offered TVIs room to expand on their responses. The questionnaire was pretested with three TVIs before being used in the final survey.

Approaching schools and teachers for responses to the questionnaire was a delicate matter. Therefore, when mailing the questionnaires, it was asked that the teacher in charge of resource classes respond; however, it was specified that names should not be attached to returned responses to protect participants' privacy. Other ethical considerations, such as acquiring participants' consent to the use of questionnaire responses, were cleared by the University of Tsukuba at the time of data collection.

Additionally, the head TVIs at five of the 52 schools that submitted responses to the questionnaire participated in a direct, semistructured interview with the author. Schools were contacted independently from the issuing of the questionnaire and

Integrated Educational Facilities in Nepal

asked if teachers would be willing to participate in an interview. Therefore, information gathered in the interviews was in no way connected to questionnaire responses. In addition to the subjects mentioned previously, questions about TVIs' suggestions for improving the quality of education for students with visual impairments were also included.

Data Analysis

The data were analyzed by calculating frequencies and percentages. Mean comparison tests were performed to compare facilities and services for students with visual impairments. Data from TVIs in rural and urban schools were compared in light of the generally held view that urban schools are equipped with better facilities for students with visual impairments than their rural counterparts. A mean comparison test was performed to analyze the quantitative data, and the *t* test was used to examine the statistical significance of the parameters of the mean comparison test at the given level of significance. The following hypotheses were used to compute the *t* test statistics:

- Null hypothesis: There is no significant difference between the mean value of rural and urban schools.
- Alternative hypotheses: The mean value in rural areas is lower than that of urban areas, or, conversely, the mean value in rural areas is higher than in urban areas.

When the calculated value of *t* was greater than the tabulated value at the given level of significance, the null hypothesis was rejected, and the alternative hypothesis was accepted. The ratio of students with visual impairments to TVIs was calculated, and ratios from urban versus rural schools were compared. In some situations, respondents checked more than one item for multiple-choice questions; therefore, some of the percentages are greater than 100 percent. The qualitative data were dealt with thematically, breaking down responses in terms of issues identified in common in the various responses.

Results

Demographic Characteristics of TVIs

As shown in Table 1, the majority of TVIs were in middle age: Most fell in the age-group categories of

31 to 40 or 41 to 50. They had an average age of 41.7 years. On average, the teachers' number of years of schooling was 13.2 years, which is equivalent to a first-year bachelor level in Nepal's education system. The vast majority of the TVIs were male (82.4 percent), while only 17.6 percent were female.

Ninety-four percent of TVIs were found to hold a teaching license. In Nepal, only those who acquire a license by passing a teaching exam are formally allowed to teach. However, this is a general license for all teachers and doesn't indicate specific training on the part of TVIs. Most TVIs also had a great deal of experience working in the field. Collectively, they had worked an average of 16.7 years in educating students with visual impairments. In terms of their training, 65.4 percent had acquired training in both Nepali and English braille. Likewise, another 61.5 percent had received training in O&M, and 48.1 percent had obtained training in ILS. Of the schools where participating TVIs taught, 62.7 percent of the schools were located in rural Nepal, while the remaining 37.3 percent were located in urban areas.

The average number of TVIs in a school was found to be 1.73, to an average of 11.65 students with visual impairments. Thus, the ratio of the averages of TVIs per students with visual impairments was 0.548. This workload of TVIs is in line with the Nepalese government's provision that there must be one TVI per every 10 students in order to establish a resource class (UNICEF Regional Office for South Asia, 2003). Nepali braille was taught in the resource classes of 78.8 percent of schools. Only 3.8 percent of schools taught O&M, whereas 57.7 percent taught ILS to their students with visual impairments.

Table 2 compares TVIs' qualifications based on their academic and training backgrounds, along with their teaching experience. These data are further broken down into comparative urban and rural categories. The mean number of years of schooling for TVIs in rural schools was 12.677, compared to 14.056 years for teachers in urban schools. This is statistically significant at the level of 5 percent, indicating that the TVIs of urban schools were more academically qualified than their rural counterparts. Although TVIs in both areas had similar records of obtaining training, for example, in Nepali and English braille and O&M, teaching experience and training in ILS was relatively higher in urban TVIs. Thus, TVIs

Table 1. Descriptive Statistics

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
Characteristics of teachers of students with visual impairments (TVIs)					
Gender (male = 1)	51	0.824	0.385	0	1
Age	51	41.667	8.499	23	59
Years of schooling	50	13.220	2.341	10	17
Teaching license	50	0.940	0.240	0	1
Years of experience as a TVI	48	16.667	8.433	2	34
Training (1 = takes the training)					
Nepali and English braille	52	0.654	0.480	0	1
Orientation and mobility (O&M)	52	0.615	0.491	0	1
Independent living skills (ILS)	52	0.481	0.505	0	1
Characteristics of school					
Location (urban = 1)	51	0.373	0.488	0	1
No. of TVI	45	1.733	1.053	0	5
No. of students with visual impairments	49	11.653	15.908	1	83
Rate of TVI per students with visual impairments	45	0.548	0.531	0	2
Taught activities					
Nepali braille	52	0.788	0.412	0	1
O&M	52	0.038	0.194	0	1
ILS	52	0.577	0.499	0	1
Availability of exams in braille	50	1.480	0.735	0	2
Available = 2 points					
Partially available = 1 point					
Unavailable = 0 points					

were statistically significant, in terms of academic qualifications and teaching experience, but factors like teaching licenses or the amount of skill-specific training they had acquired were not statistically significant when comparing rural and urban schools.

Table 3 shows that, despite there being more schools in rural areas, the numbers of both TVIs and students with visual impairments in urban schools were higher. On the other hand, the ratio of TVIs per students with visual impairments in rural schools was higher than in urban schools. It was found that more rural schools taught Nepali braille exclusively when compared to urban schools—this was shown to be statistically significant at only a 10 percent level. Furthermore, rural schools were found to offer exams in braille more often when compared to urban

schools; this was calculated to be statistically significant at a 10 percent level.

Discussion

Studies in other countries, such as the United States, have indicated that women's involvement in teaching students with disabilities was consistently higher than men's (Rice, 2005). In Nepal, however, male TVIs clearly outnumbered female TVIs. This might have something to do with traditional attitudes toward gender roles in Nepal, particularly for teachers of this generation. Women in this age cohort would have been less likely to advance to higher education and likely also would have been discouraged by their families from working outside

Integrated Educational Facilities in Nepal

Table 2. Rural versus Urban Characteristics of Teachers of Students with Visual Impairments^a

Variables	Observa- tions	Mean	Standard Error	t Value	Accepted Hypothesis
Age					
Rural	32	40.063	1.465	-2.131**	Rural < urban
Urban	18	45.167	1.846		
Years of schooling					
Rural	31	12.677	0.400	-2.042**	Rural < urban
Urban	18	14.056	0.557		
Teaching license					
Rural	32	0.969	0.031	1.194	
Urban	17	0.882	0.081		
Years of teaching experience					
Rural	30	15.267	1.524	-1.533*	Rural < urban
Urban	17	19.176	2.060		
Training					
Nepali and English braille					
Rural	32	0.656	0.085	-0.201	
Urban	19	0.684	0.110		
Orientation and mobility					
Rural	32	0.594	0.088	-0.636	
Urban	19	0.684	0.110		
Independent living skills					
Rural	32	0.406	0.088	-1.563*	Rural < urban
Urban	19	0.632	0.114		

^a Null hypothesis is “Rural = Urban.”
* Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.

the home. In Nepal, the workforce is dominated by men in general. Thus, teaching, particularly teaching students with disabilities, has not yet been subject to the “woman’s role”-style gender stereotyping that has come to pass in other countries.

To explain the disparity in numbers of urban versus rural schools, it could be postulated that the government of Nepal and other nongovernmental organizations have targeted rural areas.

The prevalence of Nepali braille teaching is unsurprising, given that mastering its use is the prerequisite for students to move into integrated courses. However, no official statistics are kept on the braille literacy rates of students with visual impairments, either in Nepali or in English braille.

Finally, the result of the comparison of teachers’ training histories supports the null hypothesis that existing TVIs are sound in terms of their qualifica-

tions and experience. However, training programs for TVIs are still not widely enough available to ensure that every teacher has the full skill set they need.

Interviews with TVIs

In the interviews, specific questions about resources available to TVIs and students with visual impairments were addressed. In resource classes, students are generally taught both Nepali and English braille, social interaction skills, O&M, ILS, and basic mathematics including Nemeth code. Resource rooms were equipped with Perkins braille writers, slates, styluses, and tape recorders. Typically, TVIs needed to use the same equipment to prepare lesson materials and textbooks in braille; therefore, with the exception of slates and styluses, schools were not able to offer this equipment to students with visual impairments for their individual

Table 3. Rural versus Urban School Characteristics^a

Variables	Observations	Mean	Standard Error	t Value	Accepted Hypothesis
No. of teachers of students with visual impairments (TVIs)					
Rural	28	1.536	0.150	−1.647*	Rural < urban
Urban	17	2.059	0.326		
No. of students with visual impairments					
Rural	30	8.633	1.942	−1.702**	Rural < urban
Urban	19	16.421	4.885		
Rate of TVIs per students with visual impairments					
Rural	28	0.668	0.109	2.025**	Rural > urban
Urban	17	0.349	0.094		
Taught activities					
Nepali braille					
Rural	32	0.875	0.059	1.672*	Rural > urban
Urban	19	0.684	0.110		
Orientation and mobility					
Rural	32	0.063	0.043	1.103	
Urban	19	0.000	0.000		
Independent living skills					
Rural	32	0.594	0.088	0.102	
Urban	19	0.579	0.116		
Exams in braille					
Rural	30	1.600	0.123	1.579*	Rural > urban
Urban	19	1.263	0.185		

^a Null hypothesis is "Rural = Urban."

* Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.

use. Furthermore, none of the schools that participated in the interview had computer facilities available to their students with visual impairments. All the TVIs who were interviewed found mathematics, particularly geometry, and science subjects in which picture-based problems are often used difficult to teach, as they lacked both the techniques and the technology to deal with students with visual impairments' needs.

Sometimes the needs of students with visual impairments exceeded that which could be provided by integrated classroom teachers. Although there are no hard-and-fast rules about how to deal with this problem, from interviews it became apparent that informal counseling and cooperation between TVIs and subject teachers does take place.

According to the teachers interviewed, at their schools there were no provisions for students with

visual impairments to take exams in braille. Survey results indicated that some schools were able to administer exams in braille, but this was rare. In schools where exams could not be arranged in braille, students with visual impairments would have to make answers orally after being read the exam questions by an assistant, who would then transcribe the answers on the exam sheet. This is a great barrier to students with visual impairments' education, particularly in subjects that pose significant difficulties to begin with, such as mathematics, science, and foreign languages.

Limitations of the Study

In this nationwide survey, it was encouraging to garner responses from 71.23 percent of the schools that were solicited (52 out of 73 total schools in Nepal). In terms of statistical analysis, the sample

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size would seem limited, yet receiving such a wide range of responses was nonetheless important to the goal of presenting a general picture of the current state of integrated education in Nepal. However, as with any study conducted within a mostly untouched field of inquiry, the results are limited by the lack of opportunity for comparative evaluation. Because of the dearth of previous data on the situation of integrated education in Nepal, there is little possibility of analyzing progress or development. For now, only the present can be examined.

Conclusion

The information in this article is intended to give an overview of the current state of resource classes and teaching available to Nepalese students with visual impairments. The author has focused on the qualifications of TVIs and available facilities in schools. It was found that both rural and urban schools in Nepal have made the same kinds of facilities available to students with visual impairments, although rural schools were found to provide relatively better facilities. For example, along with regular classes, students with visual impairments in rural schools were more likely to be offered exams in braille and teaching in Nepali braille.

Although the TVIs who participated in this study were found to be generally competent and well qualified, teachers require up-to-date skills in order to provide students with quality education. The sometimes insufficient training of TVIs must be addressed by arranging programs like refresher training, so that teachers can regularly upgrade their skills in effective teaching and learning processes. O&M is one particular skill area in which teachers' training and resources are currently lacking.

Additionally, problems caused by insufficient teaching materials, particularly in subjects like mathematics and science, have to be remedied in order for further improvement. Where materials and resources are concerned, the existing method of sitting exams with the help of an assistant is problematic. This problem needs to be eliminated by making exams available in braille or by providing other constructive alternatives such as teaching

computers. Students with visual impairments will be able to explore their real potential only once they are able to take exams fully independently.

Finally, it is suggested that further research to assess the performance of students with visual impairments and to identify further difficulties they may face while attending integrated classes is required in order to gain a more complete picture of both the challenges and the benefits of the current system.

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Vision, Postural Development, and Ageing: A Review

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Abstract

Postural orientation is achieved by interaction between the somatosensory, visual, and vestibular systems. Its development requires maturation of the sensory subsystems and integration of their inputs by the central nervous system (CNS). The subsystems mature at different rates, limiting the ability of young children to resolve conflicting information in real-time. When maturation is complete, young adults have a large margin of safety for the maintenance of postural orientation, which can be conceived of as a perceptual motor skill. Vision plays an important role in this process, and with age there is a re-weighting towards a reliance on visual cues as conduction speeds and CNS integration begin to slow. This pushes older people with visual impairments closer to the limit of their ability to maintain postural orientation, which has implications for the vision rehabilitation professionals and for researchers in this field.

Keywords: postural orientation, ageing, low vision, proprioception

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Introduction

In its simplest sense, posture is seen as a snapshot of how efficiently body segments are aligned for optimal functioning. While this is necessary for a basic description, it belies the complexity of the underlying mechanisms and ignores the dynamism inherent in living systems. Humans are not moments frozen in time, and at its most minimal, posture is the way we are organized in balanced quiet standing.

Postural stability also varies over the individual's life span. A child must learn to stand within a developmental context. Maturation of the nervous

system and interaction with the environment pave the way for sophisticated balance and equilibrium reactions that support a vast range of skilled movements. Poorly integrated development, trauma, and disease can all impact postural efficiency and eventually there are age-related changes that have an additional impact.

There are two major schools of thought about posture within the literature. One view sees posture controlled as a whole entity that defines body orientation with respect to gravity (Dietz, 1996). In this scheme, the body oscillates around the ankle joints like an inverted pendulum, and this is sometimes referred to as a "bottom-up" approach. The other viewpoint sees posture as based on superimposed segments (head, trunk, and legs) linked by sets of muscles under specific control, and this approach is sometimes referred to as the "top-down" mode (Massion, 1998). From this perspective the head is functionally the most important segment because the eyes and vestibular mechanisms provide important sensory input that stabilizes the

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head in space and provides a reference frame for the organization of the rest of the body. It is, however, generally agreed that a number of interrelated factors control postural stability, the main inputs coming from the somatosensory (chiefly proprioceptive and tactile), vestibular, and visual systems (Black & Wood, 2005; Horak, 2006; Roberts, 1995).

Proprioception

Proprioceptors are specialized receptors in skeletal muscles, tendons, joints, ligaments, and connective tissues that monitor stretch. With our eyes closed or in a dark room, we are still aware of the position of our limbs and their orientation with respect to each other, at least in a general sense. This is our sense of position (Schmidt, 1986). If we have not moved for a long time or when we wake up, our position sense is generally well preserved. If we change the position of a joint and therefore the relationship of body parts to each other without visual control, we perceive the direction and the velocity, and this is our sense of movement (Schmidt, 1986). The ability to estimate the amount of muscular force necessary to move or maintain position is called our sense of force (Schmidt, 1986). Together these three senses inform the ability that we call proprioception, which along with signals from nonsensory sources is integrated centrally. There is a proprioceptive chain running from the head (beginning with the eye muscles) to the feet (Roll & Roll, 1998), and its optimal functioning is fundamental to the organization of appropriate muscular activity in the regulation of postural orientation.

Tactile Stimuli

Specialized nerve endings in the skin respond to changes such as touch, pressure, and stretch. These inform the central nervous system (CNS) of changing conditions between the body and its environment. Shifting pressure on the soles of the feet as the body sways over the ankles is one example of tactile input to postural stability.

Additionally, light touch with the hand is known to have a powerful stabilizing effect on postural organization even when a surface is touched with the index finger at a level of force that is not supportive. The mean sway amplitude in blindfolded subjects decreases by around 50 percent when allowed finger contact, and the time course for this is rapid (Lackner & DiZio, 2005; Rabin, DiZio, &

Lackner, 2006). A finger dropped to contact a surface will be stabilized within 100 ms and there will be a decrease in mean body sway within the next 100 ms, whereas visual stabilization of posture, as when turning on lights takes three to four times longer to initiate and longer again to be complete (Lackner & DiZio, 2005).

Vestibular Input

Two different types of receptors in the balance mechanisms of the inner ears (the vestibular system) respond to different types of acceleratory body movements. The main stimulus for one of these types of receptors is gravity. For any orientation of the skull, the discharges produced provide information about the position of the head in space relative to gravity and so give important information about the individual's general orientation to the supporting surface. Proprioceptors in the neck then provide information that allows the CNS to discriminate between head movements and whole-body movements, both of which stimulate these receptors. This is an important distinction and is critical for postural stability. Neck muscle proprioceptive input plays a leading role in body orientation and postural regulation (Duclos, Roll, Kavounoudias, & Roll, 2004), a sensory role that is often overlooked.

The second type of receptor responds to rotational acceleration and so gives information about head movements in space. This allows the CNS to appreciate movement in the context of the current orientation to the environment. The combined information from the vestibular system provides a highly accurate representation of the head in three dimensions (Lackner & DiZio, 2005), and this helps maintain stability of images on the retina during motion by automatic adjustments called vestibulo-ocular reflexes.

Visual Control of Postural Orientation

There appears to be a dual nature to the function of vision in postural control. First, in quiet stance, visual cues allow us to estimate the position of our body with respect to external reference objects such as the supporting surface, the horizon, and strong verticals and horizontals in view. Experimentally it has been found that reducing environmental struc-

ture increases postural sway, a commonly agreed indicator of stability (Kinsella-Shaw, Harrison, Colon-Semenza, & Turvey, 2006). Additionally Kinsella-Shaw et al. found that reduced illumination levels had a similar effect, and that both illumination and environmental structure affect quiet standing in an age-related way, with older participants exhibiting more postural sway than young adults.

The second aspect of visual stabilization is from visual information received when we move, which is a reafferent stimulus known as optic flow. Optic flow arises from changes in the geometry and dimensions of the visual patterns of the external space as the individual moves relative to the space. The optical flow radiates out from the point in the optic array that coincides with the direction of motion, and this point falls on the center of the retina.

Optic Flow and Development

Exploration of the effect of optic flow on posture began with the work of Lee and Aronson (1974), and the “moving room” protocol they developed is still being used for research into the relationship of vision and posture (Godoi & Barela, 2008). The authors constructed a moving room that had a stationary floor, but the walls and ceiling could move back and forward along tracks. Infants who were just beginning to stand independently were seen to sway and stagger when the walls moved. This led these authors to posit that visual information dominated over proprioceptive information in the postural stability of young children who had recently learned to walk. Forssberg and Nasher (1982) also reported this destabilization due to optic flow but interpreted these findings as due to an inability by the children to establish context-dependent weightings of sensory input in order to process intersensory incongruities. The sensation of movement induced in a passenger on a stationary train when they watch as the adjacent train pulls out of the station is an example of an intersensory incongruity induced by optic flow.

Development of Sensory Organization

Optic flow has been shown to signal heading direction, environmental layout and postural stability in a lit environment (Duffy & Page, 2004). Vestibular

input also provides information on rotation and translational movements of the observer, and these inputs continue to be provided in darkness as well as in an environment that is illuminated. These two systems have differing response dynamics, which means that reliance on one or the other may vary with the situation at hand. Because the sensory systems mature at different rates, young children cannot always process intersensory incongruities efficiently and cannot yet use a composite self-movement signal.

Steindl, Kunz, Schrott-Fischer, and Scholtz (2006) tested the sensory subsystems in seven age ranges of children and compared their performance with adults in an attempt to clarify some of the conflicting results that they found in the literature. They found almost no change in the proprioceptive function during standing after the 3- to 4-year age-group and concluded that this system was mature at this age. They also found that visual input to postural control was mature by age 15 to 16 years.

Intersensory conflict emerges when visual and proprioceptive inputs are incongruous, and it is here that vestibular input is critical. Steindl et al. (2006) found that 15- to 16-year-olds had mature vestibular function and so concluded that in adolescents all three subsystems were mature and that they should have the ability to solve intersensory conflict. It is interesting to observe that adolescents around this age delight in playing with these newly integrated inputs by engaging in a range of activities that challenge their balance (e.g., rollerblading, skateboarding, and so on).

Integrating All the Inputs

From a developmental point of view, head control is the first skill to develop, implying that head posture in space is important for the posture of the lower body segments with respect to the external world. Muscular responses to balance perturbations have been shown to develop from the head down (Woolacott & Shumway-Cook, 1990), and so in the early years the top-down or descending mode of postural organization prevails (Massion, 1998). The bottom-up organization emerges last with “the ability to control the whole body’s posture and the distribution of the body segment masses with respect to the supporting area” (Massion, 1998, p. 469). This means that there has to be an integration of the top-

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down and bottom-up modes at some point in development, and Massion believes that the reorganization of postural control that occurs around the age of 7 years is a last challenge to this process of integration. Other researchers have also found that this is a watershed age for development. Assiante and Amblard (1992) report a transition phase for the use of peripheral vision in dynamic balance control around the age of 7, and there is a transition phase around ages 7 to 8 for movement control generally (Nougier, Bard, Fleury, & Teasdale, 1998).

Ultimately upright postural stability is behavioral as much as it is a state of readiness for action. Information from the somatosensory, vestibular, and visual systems all lead to the establishment of the “behavioral vertical,” and uprightness is maintained by reference to it (Roberts, 1995). The behavioral vertical is a composite of all sensory information, not just the gravity vertical measured by the vestibular apparatus, with the imperative of preserving the integrity of the major sensory receptors in the head from hitting the ground.

Age-Related Changes to Sensory Input

According to Peterka (2002), healthy adults on a firm base of support and in well-lit conditions will rely on 70 percent somatosensory, 20 percent vestibular, and 10 percent visual input to maintain postural support. As the environment changes the individual can reweight his or her relative dependence on these inputs. If the surface is unstable, the individual decreases his or her dependence on somatosensory input and will shift the weighting toward vestibular and visual cues. The functioning of this re-weighting “can be likened to a proportional representation voting system, in which every single vote has an impact on the outcome but the strength of that impact depends on the total number of votes” (Day & Cole, 2002, p. 2087).

Simoneau, Leibowitz, Ulbrecht, Tyrrell, and Cavanagh (1992) studied the effect of vision and head posture in a group of older women and concluded that the somatosensory system contributed 58 percent to postural stability and that the vestibular system contributed 12 percent, leaving 30 percent to be accounted for by visual input. Perrin, Jeandel, Perrin, and Bene (1997) studied somatosensory and visual inputs to postural control in healthy older

adults and found that nerve conduction speeds and CNS integration slows with age. They found that older adults had difficulty adjusting their balance by movement around the ankles and shifted to a reliance on visual input, especially for dynamic balance control. Peripheral somatosensory sensation is the most important sensory subsystem in the maintenance of standing balance, but with slower response times, older adults begin to reweight toward visual input.

Lord and Menz (2000) found that visual impairment was strongly associated with increased instability when the subjects were standing on a compliant surface that reduced proprioceptive input from the ankles and feet. If visual impairment compromises the usefulness of the input from the visual system, then the individual is pushed closer to the limits of his or her ability to maintain postural integrity. This is particularly so if the supportive surface is compliant (e.g., lawn and gym mats), further limiting the independence of older people with visual impairments.

The development of postural stability is based on the maturation of the three sensory subsystems that subserve upright balance. Because of differing maturation rates and changing body proportions, young children have difficulty resolving conflicting information from these subsystems, but in adolescents 15 to 16 years of age, all three subsystems are mature and they should have the ability to solve intersensory conflict. This gives adults a large safety margin to ensure postural stability as they move through the changing external world.

With ageing and slower response times in the nervous system, older adults begin to reweight toward visual input, but if visual ability declines, this pushes the older adult closer to the limits of his or her postural integrity and predisposes him or her to falls. Likewise, individuals with total or partial visual impairments are prone to falls, and there is a higher risk of fall or instability-related injury in this population (Klein, Klein, Lee, & Cruickshanks, 1998).

As bodily changes occur throughout the life span, the CNS must adapt and recalibrate its ability to maintain postural integrity. This integrity is not static but dynamic and is best conceived of as a perceptual motor skill (Reed, 1990). Interventions such as exercise and balance training are regularly used in rehabilitation settings to improve the postural integrity

in the elderly adult population, but this is not usually specifically directed to people with visual impairments. Lee and Scudds (2003) propose that such interventions in the visually impaired elderly population may be indicated, and given that there is evidence of postural dysfunction in congenitally blind individuals (Rosen, 2000), it may be useful in this population too. To date, the only trial to specifically look at fall prevention in the older visually impaired population found that a home safety program successfully reduced falls, but the exercise intervention used did not (Campbell et al., 2005). This highlights the need for specificity of intervention in this population.

Conclusion

Visual impairment reduces the information available to the CNS for the organization of postural orientation and has been linked to greater risk of falls and their sequels. The proprioceptive system provides the most sensory input to this organization but becomes less efficient with age, and interventions to reduce the risk of falls in individuals with good functional vision have not been shown to be effective for people with visual impairments. Given that adaptation to changing inputs continues throughout the life span, the possibility to improve the way sensory information is processed needs to be addressed in order to optimize functional mobility in people with visual impairment.

Gauchard, Jeandel, Tessier, and Perrin (1999) studied the differences between bioenergetic (jogging, swimming, and cycling) and proprioceptive activities (yoga and soft gymnastics) against a control group in an elderly population and found that the group practicing proprioceptive activities showed significant improvement in adapting to balance with their eyes closed, confirming the proprioceptive implication of these activities. Untargeted group exercises that challenge balance have also been shown to be beneficial, as have tai chi classes in community settings (Voukelatos, Cumming, Lord, & Rissel, 2007). Many of these interventions are delivered in a group setting or require the participants to learn movement patterns or exercises that may be unfamiliar and are then practiced at home. People with visual impairments are at an obvious disadvantage in these circumstances.

A physical intervention delivered in a one-to-one context would take account of visual impairment in the older population and may provide additional benefit to this population by further reducing the risk of falls. Proprioceptive re-education modalities such as the Alexander Technique (Alexander, 1923) have been shown to improve functional reach, which is a clinical measure of balance (Dennis, 1999), and to improve automatic postural coordination (Cacciatore, Horak, & Henry, 2005). The Alexander Technique is usually delivered as a "hands-on" postural re-education lesson, and this may reduce the difficulty many people with a visual impairment have when learning other proprioceptive activities. A research project has been set up by this author to determine if the Alexander Technique would be beneficial in these circumstances, but more research is still required to identify and tailor a range of suitable activities that will effectively improve proprioception and postural stability in people with visual impairments.

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Dr. Susan Ponchillia: Her Legacy

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“A teacher affects eternity; she can never tell where her influence stops.” In this sense, Sue Ponchillia was a teacher in every aspect of her life, positively influencing not just students but everyone with whom she came into contact.

Starting in 1975—after she earned an associate of arts degree from Ferris State University—Sue’s education and work life were dedicated to the field of blind rehabilitation. Her vitae reveals a constant progression of education, training, and increasing professional responsibility.

She went on to earn a bachelor of science degree in special education for the Visually Impaired in 1977, a master of arts degree in rehabilitation teaching in 1978, and a doctoral degree in special education, higher education in 1984, all from Western Michigan University (WMU).

Paul, her husband and colleague, talks about their first encounter when she started as a student.

“When I walked into my first Monday evening class at WMU, up pops this sweet young woman’s voice asking if I might be looking for someone to be my print reader. Two of her most beautiful qualities, that is, her easy and welcoming nature and her willingness to give, were immediately obvious. I would later learn of two others, her indomitable spirit and inner courage.

Susan did, indeed, become a reader for me. She was especially good at reading tests. If I told her to mark an answer on the test form that she thought was wrong, I’d hear a gagging sound from her. Of course, I should have listened since I ultimately missed most of those questions. This little writing exercise was the beginning of what would blossom into a totally fun and productive 29-year writing partnership. Early on, we had a bit of a battle of writer’s egos, but we eventually learned that she was the better wordsmith and formatter, and I was better at early drafts.”

Over those years, Sue completed required internships in teaching and administration and worked as a rehabilitation teacher, a recreation instructor, and an instructor in the WMU Department of Special Education. She joined the faculty of the College of Health and Human Services’ Department of Blindness and Low Vision Studies as an instructor in 1984 and attained full professorship in 1997, a steep climb in a short period of time. But that was how Sue did things.

Complementing her formal education and work, she availed herself of dozens of self-education and continuing education opportunities related to the discipline, such as gerontology, health—particularly diabetes—education, and communication. It can be said of this lifelong learner that her expertise was matched only by her creativity, passion, compassion, and extraordinary and quite exemplary productivity. All those characteristics are evident in Sue’s endeavors. And, in all these, she excelled and

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accomplished what was far above the call of duty or what was required.

This is particularly true of her teaching and her ability to relate to the whole student. In the 1990s, Sue was awarded the Department of Blind Rehabilitation's Teaching Excellence Award, and in 2002, Sue received the CHHS Teaching Excellence Award. In their nomination for the latter, students lauded her for her hands-on approach to teaching and her excellence in using technology, for incorporating research and creativity into teaching, and for her enthusiasm and passion for teaching. This was a well-deserved reward, but to Sue, the reward was in the doing. She taught by example and enhanced the education experience of all her students with that example.

What Sue learned as a student and scholar she synthesized and gave back in the form of research, publications, and presentations. As many sources have noted, she and husband Paul authored the seminal textbook of the profession: *Foundations of Rehabilitation Teaching with Persons Who Are Blind or Visually Impaired*. Her other contributions to the knowledge base are, indeed, countless, and they utilize a great variety of media, including the traditional print as well as video and audio. Individually and in total, they combine her commitment to improving the quality of life for persons with blindness and low vision with her love of sports and recreation, her keen interest in cultural diversity and anthropology, her love of nature, her ability to teach as well as research and administer, and her love and respect for humanity and human beings.

Her 20 years of work with the Tlicho people in the Canadian Northwest Territories and the documentary *Sing Me a Fish: Tlicho People Living with Vision Loss* exemplify her ability to incorporate all the elements of an experience, synthesizing them into an interesting, creative, and scholarly work.

To make this and other projects possible, Sue was able to secure grants. Together, she and Paul were very successful in securing U.S. Rehabilitation Services Administration (RSA), for Personnel Preparation of Rehabilitation Teachers. Just prior to her passing, Sue learned that another half million dollars would be coming from RSA. Securing the funding and the positive impact it brings will be to Sue's credit and a tribute to her, as will the impact and influence of her service.

Over the years, she reached out to the community also. She was a member of the Association for Education and Rehabilitation of the Blind and Visually Impaired (AER), the Kalamazoo Council for the Blind, and Habitat for Humanity of St. Joseph County. She also served as codirector of "Bike to Build," a Habitat for Humanity fund-raising event, and, most significantly, gave nearly a quarter of a century of public service to both the sports education camps for Michigan's children with visual impairments and the Bakos Memorial International Goal Ball tournaments. This, along with her professional consulting activities and her leadership and committee work with local, state, and national organizations, has defined her life as one devoted to service to others.

Although she did not seek out recognition, she certainly could not avoid it and received many awards for her scholarship, research, and service. Along with the Teaching Excellence Award already mentioned, Sue received the Peer Reviewer of the Year award from the *Journal of Visual Impairment and Blindness* in 2000 and the C. Warren Bledsoe Award for noteworthy publication on blindness from AER. This was awarded for *Foundations of Rehabilitation Teaching* text and presented at the 1998 biennial international conference in Atlanta, Georgia.

She also received the Michigan AER Award in 1996, the Bruce McKenzie Award for Outstanding Service and Contributions to Rehabilitation Teaching, Division Eleven AER in 1990, a Creative Programming Award from the National University Continuing Education Association in 1990, WMU Faculty Merit awards from 1987 to 1995, and WMU Provost/Deans Merit awards in 1988, 1989, 1996, and 1997.

The side of Susan that most of us knew was her basic kindness and goodness. Many *AER Journal* readers are former students who have been the greatest recipients of her gifts. She sweet-talked or even cajoled you into the program; brought you into her office and helped you through tough classes when you were ready to drop them and run; lent you money for tuition, books, or gas to get home; talked you through personal crises; or simply gave a hug on a bad day. Perhaps you aren't a former student but know Susan as a mentor who has coached you in goal ball, taught you at sports or art camp, brightened your day through some professional corroboration, or simply dropped everything at the office to run you across town to an important appointment. In any case, you know as

I do that this part of her has entered your souls and obligates you to act in kind on her behalf. I, more than anyone here, promise to continue her legacy of giving and kindness.

Dr. Sue Ponchillia's career was enviable by anyone's measure. She was a superb teacher, clinician, scholar, and volunteer. Her influence has stretched from coast to coast and to the far reaches of the Northwest Territories. When I look at the

number of years she was a faculty member at WMU and the number of students with whom she interacted, multiply that number by the number of consumers those individuals served, and the total number is astronomical. While her loss is great, it's precisely her influence on so many that keeps her alive and imagining ourselves as consummate rehabilitation professionals just like our teacher and mentor, Sue Ponchillia.

AER International Conference 2010

Featuring the Orientation & Mobility Division Conference Within a Conference

The Association for Education and Rehabilitation of the Blind and Visually Impaired is hosting its biennial AER International Conference 2010 this summer in Little Rock, Arkansas. Set for July 21–25, the conference will feature more than 200 hours of educational programming.

Multiple sessions will address issues related to the following topics:

- Administration
- Rehabilitation Services, BEP, & Employment Services
- Multiple Disabilities and Deafblind
- Psychosocial Services
- Information & Technology
- Low Vision Rehabilitation
- Infant & Preschool
- Orientation & Mobility
- Education Curriculum
- Vision Rehabilitation Therapy
- Aging
- Itinerant Personnel
- Personnel Preparation

Sessions will be noted as fundamental, intermediate, or advanced, giving delegates an opportunity to learn about an unfamiliar topic, gain knowledge of more advanced strategies or concepts about vision professional issues, or take an in-depth look at complex subject matter. A preliminary list of speakers and topics is available on the conference Web site at www.aerbvi.org/2010conference.

AER is anticipating more than 1,000 vision professionals will attend, including university educators, orientation & mobility specialists, teachers of the visually impaired, low vision therapists, counselors, vision rehabilitation therapists, social workers, occupational therapists, administrators, optometrists, ophthalmologists, and more.

Conference Highlights

Orientation & Mobility Division Conference Within a Conference

AER's Orientation & Mobility Division Conference Within a Conference will feature a large selection of educational sessions dedicated to relevant O&M topics. Delegates may plan on all O&M all the time or mix sessions with others throughout the conference. The conference will also feature the celebration of the 50th anniversary of the first O&M university program.

The O&M Division Conference Within a Conference education track is included as part of the AER International Conference and requires no additional registration fee.

MacFarland Seminar

July 21, 2010

The pre-conference MacFarland Seminar takes a comprehensive look at a single topic. This year's session, "Brain Injury and Vision Loss: Medical Insights Into Our New Challenge," will feature speakers from around the world presenting in-depth information on brain injury and vision loss. This one-day event prior to the AER International Conference 2010 requires a separate registration in addition to the registration for the AER International Conference. You must register for the International Conference to attend the MacFarland Seminar.

Post-Conference Workshop: Obstacle Avoidance

July 25, 2010

This popular one-day workshop features an overview and characteristics of electronic travel devices and the "K" Sonar device at a glance. Learning activities will include a manual, obstacle detection, identification, and avoidance. Registered workshop attendees (you must register for the AER

International Conference to attend the workshop) who complete the full seminar will receive a FREE "K" Sonar device courtesy of the American Printing House for the Blind for their personal use. The workshop is limited to the first 35 individuals who register; an overflow waiting list will be maintained.

AER Exhibit Hall

Learn what's current and what's new as vendors share information about products and services in the vision field.

Registration

The AER International Conference 2010 Featuring the Orientation & Mobility Division Conference Within a Conference will be held at The Peabody Little Rock and Statehouse Convention Center. Register online at www.aerbvi.org/2010conference or call 877-492-2708 (U.S. & Canada) or 703-671-4500.

List of Concurrent Sessions*

Administration

- National Agenda Past and Present: How to Make it Work for You - Karen Blankenship, Phil Hatlen
- Improving the School Improvement Cycle: Using the Process to Improve the Product - Marjorie Kaiser
- The Journey to Improved Student Outcomes - Nancy Toelle
- 2010 Data Releases and New Methods for Demographic Analyzes of Population and Prevalence Data of Visual Impairment and Other Disabilities for Service Agencies, Administrators, Program Planners, and Researchers - William Sansing
- Needs assessments in rural and urban states: Strategies and Challenges for addressing differences in service delivery, organizational structure and demographic composition - William Sansing, Adele Crudden
- Blueprint for Seamless Services: repairing the foundation of vision rehabilitation - Lynda Jones

- Spreading the Word (about our profession) - Audrey Dannenberg, Beck Deerr
- Five Key Considerations in Translating Standardized Tests for Braille Readers: Examples and Solutions from the Development of the Woodcock-Johnson III Tests of Achievement - Braille Adaptation - Lynne Jaffe
- Evaluation of Services in a Blindness Organization: Contributing to Continuous Quality Improvement from the Inside - Biljana Zuvella

Rehabilitation Services, BEP, & Employment Services

- Bridging the Roads to Success: CNIB's Bridge To Employment Program - Bob Short
- Factors that Predict Employment for Transition-Age Youth with Visual Impairments - Michele McDonnell
- Successful Transition to Work Strategies: Recommendations from Professionals - Adele Crudden, William Sansing
- The Relationship of Perceived Social Support with Well-Being in Individuals with Visual Impairments - Amy McKenzie, Susan Smedema
- Choosing To See Possibilities: The "Appreciative Inquiry" Approach To Successful Employment Outcomes for Blind and Visually Impaired Students and Clients - Tim Hindman
- An Evaluation of Four UK Pilot Projects Facilitating Placement into Employment for Adults who are Blind or Partially Sighted - Karen Wolffe
- Using Web-Based Networking Sites To Support Transition and Employment Services - Jennifer Wiebold, Ian Shadrack, Jacalyn Paulding
- They're Already Adults - Why Consider an Autistic Disorder Now - Does it Make a Difference, Does it Really Help? - Terese Pawletko
- Developing Skills to Expand Career Paths and Choices for Employment - Kathleen Gallagher, Karen Wolffe, Brian Hurley, Matthew Wieseler, Daniel Novielli

Multiple Disabilities & Deafblind

- Conceptualizing Collaboration: How Teachers Work Together to Support Children with Deafblindness - Elizabeth Hartmann

*Sessions are subject to change, so please check www.aerbvi.org/2010conference periodically for updates.

- Moving Toward Literacy: Increasing the Literacy Skills of Students with Deafblindness or Multiple Disabilities Through Communication and O&M - Lynn Murphy, Miriam Telleck
- Communicating with individuals who are Deafblind during physical activity - Lauren Lieberman
- Reliability and Validity of the CVI Range: An Instrument Designed to Evaluate the Extent of Effect of Cortical Visual Impairment - Christine Roman-Lantzy, Sandra Newcomb
- From Lightbox to Books: Foundations of Literacy for Students who Have Cortical Visual Impairment - Christine Roman-Lantzy
- What's Next? Encouraging Positive Employment Outcomes for Students with Autism Spectrum Disorders and Visual Impairments (ASDVI) - Marilyn Gense, Jay Gense
- Literacy for Learners with Significant Cognitive and Visual Impairments - Loana Mason, Kara Halley
- Program for the prevention of falling by deaf-blind persons - Marie-Claude Lavoie, Marie-Elaine Durand
- Perspectives on Transitioning from Middle School to High School for a Student with CHARGE: A Case Study of a Successful Transition - Roseanna Davidson, Kathleen Sheriff, Christopher Sence
- The Five Day Experience: Deafblind Young Adults in Action - Virginia Jordan, Kelvin Crosby, Jason Corning
- Journey to Uganda: Empowering Deafblind Young Adults in Leadership Roles - Amy Parker, Virginia Jordan, Ashley Wilson, George Odongo
- Septo-Optic Dysplasia: Going Beyond the Visual, Neurological, and Endocrine Issues: The Real Dilemma in Social, Language, and Emotional Issues - Betsy Flener
- Promoting Literacy of Students with Visual and Multiple Disabilities - Betsy Flener

Psychosocial Services

- Empowering Consumers to Achieve Greater Independence and Vocational Outcomes Through the Utilization of a Holistic Approach: Implications for Vocational Rehabilitation Professionals - Kenyotta Cross, Larry Coffey

- Life/Career Counseling: Guiding Youth & Adults with Visual Impairments to Achieving Their Goals - Karen Wolffe
- Research Results: Are we a compassion satisfied profession? - Jennipher Wiebold, Penny Wilmering

Information & Technology

- A Tale of Three Operating Systems - Comparing the built-in accessibility of Windows 7, Mac OS X Snow Leopard, and Linux 2.0 - Michael Wigle
- Digital Media: Resources for the Blind, Visually Impaired and Print Disabled - Brayn Ayres, Dawn Wilkinson
- Assistive Technology for Visually Impaired Students with Significant Additional Impairments - Bruce McClanahan
- The Nemeth Code Tutorial: The Results of a Two-year, Randomized Field Trial Demonstrating Its Effectiveness - Gaylen Kapperman, Jodi Sticken
- BOSMA Rehabilitation Center Build Your Own Computer Program - William Powell
- Miami Lighthouse Music Production Program: A Live Demonstration of Composing, Recording and Arranging Music by the Blind and Visually Impaired - Virginia Jacko, Harold Cobo, Omar Banegas
- We've All Gone Digital: The Information Age at Your Fingertips - Dave Wilkinson
- Keeping Up to Date With Low Vision Technology - Ike Presley
- BrailleNote Apex; Redefining A Note Taker - Greg Stilson
- Accessible GPS Overview and Comparison - Mike May, Jerry Kuns
- Publish or Perish!: Building the Knowledge Base of the Field of Blindness and Visual Impairment Through Publishing - Carol Farrenkopf, Natalie Hilzen
- Guidelines for the Preparation and Adaptation of Multimedia Materials for Students Who are Blind or have Visual Impairments - Sean Richards Tikkun
- Twitters, Web Conferences and Blogs, oh my!: The Importance of Participating in an Online Learning Community for Blindness and Visual Impairment - Anne Marie Durham

- The Braille View: Are You Connected? - Belinda Lane
- Mission Possible in the Real World: Adapting Math into Braille - Annette Greathouse Norman, Becky Browning
- Haptic Glove Increases Access to Mathematics Instruction for Students who are Blind or have Visual Impairments - Heidi Cowan, Mary Ellen Bargerhuff
- Implementing AIM (Accessible Instructional Materials) with Students using Portable Electronic Tools: BrailleNote, Victor Reader Stream, and ClassMate Reader - Donna McNear, Dominic Gagliano
- Freely Available Tactile Map Production Software and Symbols: Introducing the Development and Resulting Symbol Sets for both Tactile Reference/Street Maps and Tactile Thematic/Socioeconomic Maps as well as Tactile Production Software - Amy Lobben
- Assistive Technology Tools for Teachers of the Visually Impaired - Bruce McClanahan
- Training and Education to Improve Services and Environments for Seniors with Vision Impairments at HFHS Livonia Medical Center - Anne Riddering
- Vision Loss, Memory, and Older Adult Learning: Strategies to Enhance Vision Rehabilitation Utilizing Recent Research on the Aging Brain - Colleen O'Donnell
- Why Can't Grandma Shop? Assessing Safety and Accessibility in Communities and Getting Changes Made - Anne Riddering
- To Drive or Not to Drive? Driver Assessment and Pre-Road Training, a Protocol that Works - Anne Riddering
- Clinically Relevant Magnifier Optics: diopter power, magnification rating, equivalent power, image location, two-lens formula and enlargement ratio - William Mattingly
- Multidisciplinary Rehabilitation Approach for Patients with Neurological Etiology - Tyler C. Hamilton
- Cortical/Cerebral Visual Impairment (CVI): Is CVI One or Several Entities - Barry Kran, O.D.
- Where, Oh Where Has it Gone?: Visual Field Deficits and Scanning Techniques for the Client with Low Vision - Colleen O'Donnell
- Rehabilitation of Neurological Vision Rehabilitation in Combat and Non-Combat Brain Injury - Gregory Goodrich, John Kingston

Low Vision Rehabilitation

- Using Reading Tests to Evaluate Macular Function - Donald Fletcher, MD
- Maximum Speed: Increasing the computer proficiency of students with low vision - Cynthia Bachofer
- Get with the Program: Pairing self-advocacy and low vision tools and strategies to increase student independence - Cynthia Bachofer, Chrissy Cowan
- Better Lighting for Better Sight—Illuminating Ideas - Priscilla Rogers, Bryan Gerritsen
- Factors to Consider When Making Choices about Print Literacy - Amanda Lueck
- Eccentric Viewing: Opening the Door to Improved Reading Skills for People with Macular Disease - Michelle Beck
- Medicare & Low Vision Rehabilitation Reimbursement: Past, Present and Future - Jim Deremeik
- Low Vision Rehabilitation Outcomes, LVROS - Jim Deremeik
- Overcoming Barriers to Accessing Vision Rehabilitation Services by Members of Diverse Ethnic Communities - Alexander Shaw, Deborah Gold

Infant & Preschool

- The Expanded Core Curriculum for Our Youngest Children with Visual Impairments or Blindness: What can we do at this young age? - Christine Clark-Bischke, Susan Sullivan
- Petition for An Additional Vision Milestone in Standard Vision Screening Methods - Paul Del Frari
- Promoting Emergent Literacy in Young Children with Visual Impairments: Recommended Practices and Resources - Deborah Hatton
- The Pyramid Model for Promoting the Social and Emotional Development of Infants and Young Children with Focus on Learners who are Blind/Visually Impaired - Tanni Anthony

- VIPS@Home Parent University Series: Designed to provide education and support to parents/caregivers of young visually impaired children - Charles "Burt" Boyer

Orientation & Mobility

- Deafblind Travelers Obtaining Assistance When No Pedestrians Are Present - Eugene Bourquin
- O&M Tic-Tac-Toe - Becky Smallwood
- Utilization of Web-based Maps for Orientation and Mobility - Kevin Hollinger
- Yikes! Is this a safe strategy for crossing the street? - Dona Sauerburger, Anne Marie Laughlin
- Geocaching is For Everyone - Ann Hegstrom
- Step by Step - systematic cane instruction and assessment - Dona Sauerburger
- Factors Contributing to the Increased Risk of Falls Among the Elderly - Mary Ann Zelinsky
- Orientation and Mobility Specialists' Positioning Practices when Teaching Street Crossings: Is there a Standard Approach? Kim Zebehazy, George Zimmerman, Rebecca Renshaw
- O&M Collaboration with families in the 21st century: Introducing the "O&M Family Booklet" Software program - Fabiana Perla, Betsy O'Donnell, Terrie Terlau
- How the presence and actions of quiet vehicles impacts alignment, gap detection, vehicle detection, and vehicle path discrimination - Robert Wall Emerson, Dae Shik Kim
- Drop-off Detection with the Long Cane: Effects of Cane Techniques, User Characteristics, and Ergonomic Factors - Dae Shik Kim, Robert Wall Emerson
- Who's Sitting Next To You? A 2009 Survey of AER Division 9 Members - Malinda Carlson, Joanne Mechling
- They call me an Expert but I'm not an Expert! How To See Yourself as the Expert You Really Are! - Margaret Robinson
- Finding My Way on the Yellow Brick Road or Traveling Through Oz with GPS: The Experiences of Working with Three Systems - Craig Phillips
- Orientation and Mobility: There, Here and Where. An investigation of the development of O&M; the present challenges in the field; and international issues and opportunities - Michael Meteyer
- Yellow Tape is not a Barrier! Construction which impacts public rights of ways, impact all pedestrians, especially those who are blind. Learn how Yellow Tape is not a recommended barrier - Margaret Robinson
- Providing Route Familiarization to a Guide Dog Team - Linda Torres
- Travel Instruction: Orientation and Mobility for Everyone with a Disability. Using traditional orientation and mobility techniques for the visually impaired to teach sighted persons with disabilities safe travel techniques - Diane DeJong
- How and When to Use Various AMD Configurations and Cane Modifications - Lynn Gautreaux
- Repairing and Modifying Canes and Making AMDs of Various Shapes, Sizes, and Configurations - Lynn Gautreaux
- O&M Clinical Competencies Evaluation Matrix (CCEM): Development and validation of a new evaluation tool to assess the clinical competencies of O&M interns - Rebecca Renshaw
- Tactile Town: Expanding O&M Literacy - Karen Poppe
- LOVCOMS, Low Vision Collaborative Orientation & Mobility Study - Jim Deremeik
- Roundabouts: Issues and potential solutions for pedestrians who are blind - Janet Barlow, Richard Long
- Nonvisual cues for aligning to cross streets - Janet Barlow, Billie (Beezy) Bentzen
- WiiCane: A new instructional tool for influencing veering behavior - Eugene Bourquin
- Geocaching: Looking for small boxes in the Woods using the million dollar GPS Technology. Learn how you can have fun with a GPS and a walk in the woods! - Margaret Robinson
- The Effects of Using Graduated Guidance to Teach Students with Visual Impairments Street Crossings - Tessa Wright
- O&M for visually impaired wheelchair users - Scott Crawford

- Hands-on GPS Treasure Hunt - Mike May, Meg Robertson
- Career Reflections: The Influence of IMCs in my Teaching Practice - Donna McNear
- Advances In Guide Dog Training For People With Special Needs - Steven Obremski
- Developing Evidence Based Orientation & Mobility Services: Defining the Need and Methods - Gregory Goodrich, Richard Ludt, Matthew Collins, David Patten, Summer Beasley-Hoffman
- LIVES ON THE LINE: The Importance of Standards In The Training Of Service Dogs - Steven Obremski
- Updates on strategies and techniques for teaching of street crossings - Janet Barlow, Dona Sauerburger, Billie (Beezy) Betzen, Lukas Franck
- Trekker Breeze: Use with children and adults with visual impairments, including those with multiple disabilities - Julie Hapeman
- Planning for O&M Instruction that Supports Elementary Grade Level Literacy - Diane Fazzi
- Options and methods for Transitioning From Cane to Dog Guide - Jay Stiteley, Lukas Franck, William Henry
- Can Quiet Kill? Pedestrian and Bicyclist Fatalities Caused by Hybrid Motor Vehicles - United States, 2004–2008 - Amy Freeland
- Acquired and Traumatic Brain Injury: Practical strategies for transferring scanning skills to a variety of Mobility and other Activities of Daily Living - Gayle Clarke, Allison Hayes
- Click-And-Go Wayfinding Maps: Introducing a new and comprehensive approach to wayfinding for blind and deafblind travelers: from universally designed tactile-low vision maps to a fully accessible technology that provides customized indoor and outdoor walking directions and virtual tours - Joe Cioffi
- The Oregon Trail is a Breeze! - Sarah Johnson, Meredith Newhouse
- Work Zone Ahead!!!: Requirements for providing information to navigate safely through a construction area - Janet Barlow, Tim Cox
- The use of long-range communication devices to increase the teaching distance between instructor and student - Barry Stafford
- Integrating GPS into the Dog Guide Curriculum - Leader Dogs for the Blind's Low Tech Orientation Methodology - Erica Ihrke, Sarah Johnson, Meredith Newhouse,
- O&M and Play: Having Fun, While Facilitating Development in Multiple Areas of the ECC - Albert Damelio
- The Effectiveness of Master Trainer Courses to teach Electronic Mobility Aids (ETAs) and Electronic Orientation Aids (EOAs) - William Penrod
- "Don't Rearrange The Classroom – Why Not?" - Leo Randolph
- Mobility Assessment Course (MAC) - Standardized measurement of outcomes following scanning training for Neurological Vision Deficits following Acquire Brain Injury - Allison Hayes, Gayle Clarke
- Foundations of Orientation & Mobility: The Third Edition - Richard Welsh
- Comparing the Morovision Multi-Use Minimonocular NVG (MUM2) with the Nite Sport II Night Light: Which is Most Useful? - Sharon Hammer

Education Curriculum

- Development of an Accessible Computerized Math Program to Support Middle School Youth in Learning Mathematics Concepts - Penny Rosenblum, Carole Beal
- What Do Blind Kids Know About Sex? - Gaylen Kapperman
- Accuracy and Techniques in the Preparation of Math Worksheets for Tactual Learners: Results of a Research Study - Tina Herzberg, Penny Rosenblum
- Beyond the Braille Code: Teaching Vocabulary and Comprehension Strategies to Students who are Blind or Visually Impaired - Anna Swenson
- Motivated for Academic Success: Promoting Internal Locus of Control and Self-Determination among Students with Visual Impairments through Problem Solving and Critical Thinking - Adam Wilton, Kim Zebehazy
- Integrating Children with Visual Impairments into Physical Education, Recreation, and Sports - Lauren Lieberman, Mark Lucas

- Tactile Graphics? Relax. Seriously. - Frederick Otto
- Cortical Visual Impairment and Autism Spectrum Disorders: Shared Behaviors not Shared Diagnoses - Christine Roman-Lantzy, Michele Trettel
- Bookshare - What You Need to Know About the World's Largest Online Library of Accessible Digital Books - Kristina King Cohen,
- Factors Associated with the School Dropouts of Students with Visual Impairments in Nepal - Kamal Lamichhane
- Effective and Frequently Used Strategies and Aids for Advanced Mathematics As Reported by Teachers of the Visually Impaired: Results of A National Study - Patricia Myers
- Effective Practices for Description of Science Content within Digital Talking Books - Bryan Gould, Madeleine Rotherberg
- Just the Facts: ECC Research Projects Provide Evidence of Disability-Specific Skills Training for Students with Visual Impairments - Karen Wolffe, Karen Blankenship, Philip Hatlen
- Being Part of it All: Integrating High-tech and Low-tech Resources into Blind Students' Music Studies - Bill McCann
- What Can I Read? - Early Braille Trade Books - Jeanette Wicker
- Ocular Motor Complications and Their Impact on the Reading Process: Reading Methodologies to Increase - Reading Fluency for Students with Ocular Motor Complications - Marva Gelhaus
- Accommodations and High-Stakes Testing: What Pennsylvania Teaches Us about Students with Visual Impairments Taking these Assessments - Lynne Fox
- Using the RTI Model to Improve Literacy Instruction for Students Who are Visually Impaired - Cheryl Kamai-Hannan, Cay Holbrook
- The System for Conceptualizing Spatial Concepts: Bridging STEM Barriers - Jeffery Killebrew
- Using Photography as a Teaching Tool to Improve Academic Achievement of Blind and Visually Impaired Students - Barry Kleider
- Case Studies of Children with Dyslexia and Visual Impairments: Relating Patterns of Reading/Spelling Errors to Cognitive Characteristics and Instructional Principles - Lynne Jaffe
- Accessible Artificial Intelligence Tutoring Software for Science and Mathematics - Benny Johnson
- Where are They Now? Three Children with Autistic Spectrum Disorders at Different Phases in the Diagnostic/Intervention Process - Progress Since Diagnosis - Terese Pawletko
- Independent Laboratory Access for the Blind (ILAB) - Cary Supalo, David Wohlers
- AFB CareerConnect brings innovation to training for teens, adults and professionals - Joe Strechay

Vision Rehabilitation Therapy

- Yesterday's pastimes - today's consumer: Teaching with Leisure Activities - Linda Fugate
- AFB Resources to Help You Serve Seniors with Vision Loss - Priscilla Rogers, Judy Scott
- When Blindness Comes with Brain Injury: Real World Interventions for Your Clients with Brain Injury and Low Vision, Blindness or Visual Impairment - Cynthia Iskow
- An Effective Braille User's Perspective on the Learning Process.- Jeanette Kane
- REACH! TOUCH! RECOGNIZE! RETAIN! Manual Skills at the VA: What is it and why is it part of Vision Rehabilitation? - Teresa Halko, Monique Alfos
- If I Can't See Print, How Can I Read? An Examination Of Options For Accessing Printed Information For Individuals With Vision Loss At Any Age - Neva Fairchild
- Severe Brain Injury and Vision Loss: Things We Continue to Learn to Help Maximize the Quality of Life - B.J. LeJeune
- Braille on the Go: Eight Products from APH Where "One Size Should Not Fit Everyone" - Terrie Terlau

Aging

- Communication, employment, community integration, and daily living skills challenges

among seniors with dual sensory loss or vision loss alone - strategies for independence and service delivery - William Sansing

- Whoops! Falls and Fall Prevention in Seniors with Vision Loss: A Safety-First Approach - Anne Riddering
- Elder Abuse is on the Rise: Are Your Older Visually Impaired Clients at Risk? - Colleen O'Donnell

Itinerant Personnel

- Opening Doors to Braille Literacy: Hadley's Approach to Teaching Braille to Sighted Learners - Judy Matsuoka
- Response to Intervention: Including Students who are Blind/Visually Impaired into a National School Reform Movement - Tanni Anthony
- Put Nemeth on the Math Page: Teach Mathematical Concepts, Processes and Relationships While Applying Nemeth Braille Code - Patricia Bolger
- Charting our Own Course of Self-Determination - Betsy Flener
- The Power of Authentic Assessment Rubrics: Improving Instructional Practice - Mary Ann Siller, Karen Blankenship
- In Their Own Words: Aging with Hearing and Vision Loss - B.J. LeJeune

Personnel Preparation

- Implementing Effective Change to Best Practices: Who, How, and Why - Laura Bozeman, Dona Sauerburger, Janet Barlow
- A National Study of Parental Perspective of the Dual-Certified Vision Professional Service Delivery Model - Rona Pogrud, Nora Griffin-Shirley
- An analysis of visual impairment simulation experiences of students enrolled in a introductory course in visual impairment - Jane Erin, Penny Rosenblum
- Preferences and Practices Among Students Who Read Braille and Use Assistive Technology - Frances Mary D'Andrea
- Identifying the Needs of Families of Students with Visual Impairments who are from

Culturally and Linguistically Diverse Backgrounds - Silvia Correa-Torres, Kim Zebehazy

- Sustaining Nemeth Proficiency now online! - Sandy Smith
- Results of a Delphi Study Designed to Gather Data for the Development of Minimum Standards for University Programs Literary Braille Courses - Frances Mary D'Andrea, Sandra Lewis, L. Penny Rosenblum
- Post High School Outcomes of Culturally and Linguistically Diverse Students with Visual Impairments: Implications for Student Instruction and Teacher Preparation - Paula Conroy
- Profile of Personnel Preparation Programs and Their Faculty in Blindness and Visual Impairment 2007-2008 - Laura Bozeman, Grace Ambrose-Zaken
- Establishing a Mentoring Program for New Vision Professionals - Christine Cowan, Cyral Miller, Rona Pogrud

Other

- Building Communities and Empowering Families through Online Social Networking - Scott Truax, Susan Laventure, Crista Earl, Ashley Carper
- Teachers' Domain: An Accessible Digital Library for Education - Bryan Gould, Madeleine Rothberg
- The Cost of Vision Loss In Canada - Keith Gordon
- The National Transition Network Forum - A Moderated Discussion to Continue Work on National Transition Goals and Objectives That Will Guide Practices for the New Decade - Joe Strechay
- Bridges to Life Program - Katherine Hege-mann, Louis Tutt
- Knowledge of Vision Rehabilitation Services of Ophthalmology Residents - Amy McKenzie, David Henzi

Poster Sessions

- FOCUS in Mathematics - Second Edition - Jeanette Wicker, Burt Boyer
- Working through our fears. Visually impaired, blind, and deafblind students learn to collaborate with each other and staff to

accomplish the goal of climbing the rock wall - Debbie Page, Carolyn Kerstetter, Tanny Hanahan

- Quality Programs for Students with Visual Impairments (QPVI): a process approach to program improvement - Nancy Toelle
- Take A Trip With The Itinerant Personnel Division Destination: National Agenda For Education of Children Goal 4 Caseloads - Joyce Strother, Marie Topp
- Making the World Available To Students With Deafblindness: A Successful Inclusionary Program - Lynn Murphy
- O&M Camp: New Adventures in Mobility - Ann Hegstrom
- O&M Scavenger hunt in Manhattan and Grand Central Terminal: High School students with Low Vision negotiate busy urban areas - Cheryl Palgon, Cheri Aumueller
- Orientation and Mobility training for children with deafblindness and multi-handicaps; a developmental perspective. Educational history of approximately 60 students at Perkins School will determine correlation between developmental characteristics and outcome - Donna Dunham Bent, Veronika Bernstein
- Driving Club - Teens With Visual Impairments - Padma Rajagopal, Heather Platt

- Summer Transition and Employment Program (S.T.E.P.) - Kevin Hollinger
- Project H.I.R.E.: Online Employment Preparation Programs for High School and College Graduates Seeking Employment - Michele McDonnall, Adele Crudden, BJ Lejeune, William Sansing, Martin Giesen
- Universal Design for Learning (UDL) and the Instruction of Students with Visual Impairments and Blindness - Elizabeth Hartmann
- Pennsylvania's Approach to the National Agenda: The results of Three Surveys Involving Special Education Supervisors, Service Providers in Visual Impairment, and Parents of Children with Visual Impairments - Rebecca Renshaw, Debbie Holzapfel
- The South Carolina Vision Education Partnership: Working Collaboratively to Promote High Quality Education for All Children Who Are Blind or Visually Impaired - Tina Herzberg, Marty McKenzie
- Parachutes for Paraprofessionals: The Hadley/USU Distance Education Degree Program for Paraprofessionals - Judy Matsouka
- 5 Ws (Who, What, When, Where, Why) and 1 Big How: The Business Model for Job Placement - Al Farias
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